

Permit Fact Sheet

**** This permit was modified to extend the sludge monitoring requirements and frequency from once per permit term to annually each year. The modified sections below are highlighted in gray. ****

General Information

| | | |
|----------------------------------|---|-----------|
| Permit Number: | WI-0060763-09-0 | |
| Permittee Name: | VILLAGE OF LONE ROCK | |
| Address: | P O Box 78 458 South Tamarack Street | |
| City/State/Zip: | Lone Rock WI 53556 | |
| Discharge Location: | SW ¼ of NW ¼ of Section 12, T8N-R2E, Buena Vista Township | |
| Receiving Water: | Groundwaters of the Lower Wisconsin River Basin (Bear Creek, LW14) in Richland County | |
| StreamFlow (Q _{7,10}): | NA | |
| Stream Classification: | NA | |
| Design Flow(s) | Annual Average | 0.057 MGD |
| Significant Industrial Loading? | None | |
| Operator at Proper Grade? | Yes, Basic facility with Subclass A4 requirement. | |
| Approved Pretreatment Program? | NA | |

Facility Description

The Village of Lone Rock owns and operates the Lone Rock Wastewater Treatment Facility with an annual average design flow of 0.057 million gallons per day (MGD). The facility serves a population of approximately 1,000 and currently receives approximately 0.050 MGD of domestic wastewater for treatment. Treatment consists of two aerated lagoons operated in series followed by an effluent holding pond, with treated effluent discharged to either of two effluent seepage areas covering an area of about two acres. The discharge is rotated between four distinct areas of the two seepage cells. Four groundwater monitoring wells around the site are monitored quarterly. Due to the proximity of sloughs of the Wisconsin River in the direction of groundwater flow from the facility, the effluent discharge is considered an indirect surface water discharge. The permittee has been found to be in substantial compliance with the terms of its current permit.

The attached Groundwater Evaluation and Exceedance Report by Alan Hopfensperger for this permit reissuance dated September 30, 2019 contains additional information regarding this discharge to the groundwaters of the Lower Wisconsin River Basin.

| Sample Point Designation | | |
|--------------------------|--|--|
| Sample Point Number | Discharge Flow, Units, and Averaging Period | Sample Point Location, Waste Type/sample Contents and Treatment Description (as applicable) |
| 701 | .052 MGD Average (7/1/2014 - 6/30/2019) Highest Annual average 2017- .052 MGD | Representative influent samples shall be collected using a 24-Hr flow proportional composite sampler with an intake located in the wet well, after the influent flow meter and comminutor. |
| 001 | .052 MGD Average (7/1/2014 - 6/30/2019) Highest Annual average 2017- .053 MGD | Representative effluent grab samples shall be collected from the manhole prior to discharging to the seepage cells. |
| 002 | Ponds and Lagoons—sludge not removed | Representative composite sludge samples shall be collected from ponds #1 and #2 in 2021 and monitored for List 1 and PCBs. |

| Sample Point Designation For Groundwater Monitoring Systems | | | |
|---|------------------|---------------------------------|----------|
| System | Sample Pt Number | Well Name | Comments |
| seepage cell monitoring system | 801 | MW-1 (801) BACKGROUND WELL | |
| | 802 | MW-2 (802) DOWNGRAIENT WELL | |
| | 803 | MW-1A (803) DOWNGRAIENT WELL | |
| | 804 | MW-2A (804) DOWNGRAIENT WELL | |

Influent - Proposed Monitoring

Sample Point Number: 701- INFLUENT

| Monitoring Requirements and Limitations | | | | | |
|---|------------|-----------------|------------------|-------------|-------|
| Parameter | Limit Type | Limit and Units | Sample Frequency | Sample Type | Notes |
| Flow Rate | | MGD | Continuous | Continuous | |

| Monitoring Requirements and Limitations | | | | | |
|---|------------|-----------------|------------------|----------------------|-------|
| Parameter | Limit Type | Limit and Units | Sample Frequency | Sample Type | Notes |
| BOD5, Total | | mg/L | Weekly | 24-Hr Flow Prop Comp | |
| Suspended Solids, Total | | mg/L | Weekly | 24-Hr Flow Prop Comp | |
| Nitrogen, Total Kjeldahl | | mg/L | Monthly | 24-Hr Flow Prop Comp | |
| Nitrogen, Organic Total | | mg/L | Monthly | Calculated | |
| Nitrogen, Ammonia (NH3-N) Total | | mg/L | Monthly | 24-Hr Flow Prop Comp | |

Changes from Previous Permit:

The sampling frequency for BOD and TSS was increased from 2/month to weekly.

Explanation of Limits and Monitoring Requirements

Standard influent monitoring requirements for a minor municipal land treatment system.

Due to the numerous BOD5 exceedances over the past five years, increasing the sampling frequency to at least weekly for BOD and TSS parameters is recommended. This is intended to provide a more accurate measure of the loadings and treatment over time.

1 Land Treatment – Proposed Monitoring and Limitations

Sample Point Number: 001- EFFLUENT @ WET WELL

| Monitoring Requirements and Limitations | | | | | |
|---|-------------|-----------------|------------------|-------------|----------------------------|
| Parameter | Limit Type | Limit and Units | Sample Frequency | Sample Type | Notes |
| Flow Rate | | MGD | Continuous | Continuous | See section 2.2.1.2 below. |
| BOD5, Total | Monthly Avg | 50 mg/L | Weekly | Grab | |
| Suspended Solids, Total | | mg/L | Weekly | Grab | |
| pH Field | | su | Weekly | Grab | |
| Nitrogen, Organic Total | | mg/L | Monthly | Calculated | |
| Nitrogen, Ammonia (NH3-N) Total | | mg/L | Monthly | Grab | |
| Nitrogen, Total Kjeldahl | | mg/L | Monthly | Grab | |

| Monitoring Requirements and Limitations | | | | | |
|---|------------|-----------------|------------------|---------------------|---|
| Parameter | Limit Type | Limit and Units | Sample Frequency | Sample Type | Notes |
| Nitrogen, Nitrite + Nitrate Total | | mg/L | Monthly | Grab | |
| Nitrogen, Total | | mg/L | Monthly | Calculated | |
| Solids, Total Dissolved | | mg/L | Monthly | Grab | |
| Chloride | | mg/L | Monthly | Grab | |
| Zone Used | | Number | Daily | Numeric Description | Report the zone of the seepage cell loaded each day. See subsection 2.2.1.4 for special reporting instructions. |

Changes from Previous Permit:

The sampling frequency for BOD and TSS was increased from 2/month to weekly. Reporting for the zone loaded each day was added to the monitoring requirements.

Explanation of Limits and Monitoring Requirements

Due to the numerous BOD5 exceedances over the past five years, increasing the sampling frequency to at least weekly for BOD and TSS parameters is recommended. This is intended to provide a more accurate measure of the loadings and treatment over time. Standard effluent monitoring requirements for a minor municipal land treatments system. Requirements for land treatment of municipal wastewater are determined in accordance with ch. NR 206, Wis.

Zone reporting was added for the purposes of verifying and evaluating the reasons for the fluctuating groundwater PAL exceedances in MW-2. Monitoring for zone use was added to the permit so the facility reports the discharge zones being used each day (Seepage Cell 1 North, Seepage Cell 1 South, Seepage Cell 2 West and Seepage Cell 2 East) in the electronic discharge monitoring reports. Zones were assigned as follows:

| | Zone Descriptions |
|--------|----------------------------|
| Zone 1 | Seepage Cell #1 North Area |
| Zone 2 | Seepage Cell #1 South Area |
| Zone 3 | Seepage Cell #2 West Area |
| Zone 4 | Seepage Cell #2 East Area |

2 Groundwater – Proposed Monitoring and Limitations

2.1 Groundwater Monitoring System for seepage cell monitoring system

Location of Monitoring system: SWQ, NWQ, SEC 12, T8N, R2E, BUENA VISTA TWP

Wells to be Monitored: MW-1 (801) BACKGROUND WELL, MW-2 (802) DOWNGRAIDENT WELL, MW-1A (803) DOWNGRAIDENT WELL, MW-2A (804) DOWNGRAIDENT WELL

Well Used To Calculate PALs: 801

Enforcement Standard Wells: None

| Parameter | Units | Preventative Action Limit | Enforcement Standard | Frequency |
|--|-------|---------------------------|----------------------|-----------|
| Depth To Groundwater | feet | ***** | N/A | Quarterly |
| Groundwater Elevation | feet | ***** | N/A | Quarterly |
| Nitrogen, Nitrite + Nitrate (as N) Dissolved | mg/L | 3.2 | N/A | Quarterly |
| Chloride Dissolved | mg/L | 140 | N/A | Quarterly |
| pH Field | su | 8.5 | N/A | Quarterly |
| Nitrogen, Ammonia Dissolved | mg/L | 0.97 | N/A | Quarterly |
| Nitrogen, Organic Dissolved | mg/L | 2.3 | N/A | Quarterly |
| Solids, Total Dissolved | mg/L | 280 | N/A | Quarterly |

Changes from Previous Permit:

Alternative Concentration Limit (ACL) for Nitrite + Nitrate was 5.1 mg/L during the previous permit term; recalculated ACL will be 3.2 mg/L for the reissued permit. A new Alternative Concentration Limit (ACL) was calculated for the Chloride preventative action limit and will be 140 mg/L in the reissued permit. Preventive Action Limits (PALs) recalculated for: pH remains a range of 6.5 s.u. to 8.5 s.u.; and Organic Nitrogen (was 8.0 mg/L and now 2.3 mg/L).

Explanation of Limits and Monitoring Requirements

Groundwater limits and requirements are determined in accordance with ch. NR 140, Wis. Adm. Code. Enforcement Standards do not apply at this site because the groundwater discharge plume flows into surface water before reaching the discharge site point of standards application. See section 3.1.1.4 in the permit for further discussion. Indicator parameter Preventive Action Limit (PAL) values are established per s. NR 140.20, Wis. Adm. Code. Alternative Concentration Limits as allowed under s. NR 140.28, Wis. Adm. Code, are established on a case by case basis. The determination of the ACLs are included in the attached Groundwater Evaluation and Exceedence Report for the Lone Rock WWTF.

3 Land Application - Proposed Monitoring and Limitations

| Municipal Sludge Description | | | | | | |
|--|-----------------------|------------------------------|---------------------------|----------------------------|------------------|--|
| Sample Point | Sludge Class (A or B) | Sludge Type (Liquid or Cake) | Pathogen Reduction Method | Vector Attraction Method | Reuse Option | Amount Reused/Disposed (Dry Tons/Year) |
| 002 | B | Liquid | Fecal Coliform | Injection or Incorporation | Land Application | |
| Does sludge management demonstrate compliance? Yes | | | | | | |
| Is additional sludge storage required? No | | | | | | |

| Municipal Sludge Description | | | | | | |
|---|-----------------------|------------------------------|---------------------------|--------------------------|--------------|--|
| Sample Point | Sludge Class (A or B) | Sludge Type (Liquid or Cake) | Pathogen Reduction Method | Vector Attraction Method | Reuse Option | Amount Reused/Disposed (Dry Tons/Year) |
| Is Radium-226 present in the water supply at a level greater than 2 pCi/liter? No | | | | | | |
| If yes, special monitoring and recycling conditions will be included in the permit to track any potential problems in land applying sludge from this facility | | | | | | |
| Is a priority pollutant scan required? NA | | | | | | |
| Priority pollutant scans are required once every 10 years at facilities with design flows between 5 MGD and 40 MGD, and once every 5 years if design flow is greater than 40 MGD. | | | | | | |

Sample Point Number: 002- LAGOON SLUDGE

| Monitoring Requirements and Limitations | | | | | |
|---|--------------|-----------------|------------------|-------------|-------|
| Parameter | Limit Type | Limit and Units | Sample Frequency | Sample Type | Notes |
| Solids, Total | | Percent | Annual | Composite | |
| Arsenic Dry Wt | Ceiling | 75 mg/kg | Annual | Composite | |
| Arsenic Dry Wt | High Quality | 41 mg/kg | Annual | Composite | |
| Cadmium Dry Wt | Ceiling | 85 mg/kg | Annual | Composite | |
| Cadmium Dry Wt | High Quality | 39 mg/kg | Annual | Composite | |
| Copper Dry Wt | Ceiling | 4,300 mg/kg | Annual | Composite | |
| Copper Dry Wt | High Quality | 1,500 mg/kg | Annual | Composite | |
| Lead Dry Wt | Ceiling | 840 mg/kg | Annual | Composite | |
| Lead Dry Wt | High Quality | 300 mg/kg | Annual | Composite | |
| Mercury Dry Wt | Ceiling | 57 mg/kg | Annual | Composite | |
| Mercury Dry Wt | High Quality | 17 mg/kg | Annual | Composite | |
| Molybdenum Dry Wt | Ceiling | 75 mg/kg | Annual | Composite | |
| Nickel Dry Wt | Ceiling | 420 mg/kg | Annual | Composite | |
| Nickel Dry Wt | High Quality | 420 mg/kg | Annual | Composite | |
| Selenium Dry Wt | Ceiling | 100 mg/kg | Annual | Composite | |
| Selenium Dry Wt | High Quality | 100 mg/kg | Annual | Composite | |
| Zinc Dry Wt | Ceiling | 7,500 mg/kg | Annual | Composite | |

| Monitoring Requirements and Limitations | | | | | |
|---|--------------|-----------------|------------------|-------------|-------|
| Parameter | Limit Type | Limit and Units | Sample Frequency | Sample Type | Notes |
| Zinc Dry Wt | High Quality | 2,800 mg/kg | Annual | Composite | |
| PCB Total Dry Wt | Ceiling | 50 mg/kg | Annual | Composite | |
| PCB Total Dry Wt | High Quality | 10 mg/kg | Annual | Composite | |

Changes from Previous Permit:

Sludge monitoring parameters and frequency are now annual.

Explanation of Limits and Monitoring Requirements

Requirements for land application of municipal sludge are determined in accordance with ch. NR 204 Wis. Adm. Code. Ceiling and high quality limits for metals in sludge are specified in s. NR 204.07(5). Requirements for pathogens are specified in s. NR 204.07(6) and in s. NR 204.07 (7) for vector attraction requirements. Limitations for PCBs are addressed in s. NR 204.07(3)(k).

4 Compliance Schedules

4.1 Municipal Land Treatment Management Plan

A management plan is required for the land treatment system.

| Required Action | Due Date |
|---|------------|
| Land Treatment Management Plan Submittal: Submit an updated management plan for Department approval to optimize the lagoons and land treatment system performance and demonstrate compliance with ch. NR 206, Wis. Adm. Code. The lagoons and land treatment system shall be operated in accordance with the approved management plan. The plan shall clearly outline procedures for the dosing and resting of the seepage cells, including factors used in determining adequate hydraulic loadings; scheduled maintenance; vegetative cover control and removal; monitoring procedures; and operational strategies for periods of adverse weather. | 06/30/2022 |

4.2 Lagoon Desludging Management Plan

| Required Action | Due Date |
|---|----------|
| Management Plan Submittal: The permittee shall submit a management plan for approval if removal of the sludge from any lagoon will occur during the term of this permit. At a minimum, the plan shall address how the sludge will be sampled, removed, transported and disposed of. No desludging may occur unless approval of the Department is obtained. Daily logs shall be kept that record where the sludge has been disposed. The plan is due at least ninety days prior to desludging. | |

4.3 Landspreading Management Plan

| Required Action | Due Date |
|--|----------|
| Management Plan Submittal: If the permittee proposes to land apply sludge, a management plan shall be submitted and approved by the Department. The management plan shall be consistent with the requirements of this permit, and s. NR 204.07, Wis. Adm. Code. At a minimum, the plan shall describe how the application rate has been calculated, how pathogen control and vector attraction reduction requirements will be met as well as how the sludge will be land applied and incorporated. Record keeping and tracking of site loadings shall also be described. Requests for landspreading site approvals shall also be included. The plan is due sixty days prior to land spreading. | |

Explanation of Compliance Schedules

Compliance schedules were added for management plans for the purposes of having the facility plan and gain department approval for the procedures relating to the land treatment and land application operations.

Special Reporting Requirements

None

Attachments:

Substantial Compliance Determination –
NR 140 Groundwater Evaluation Report – September 30, 2019

Proposed Expiration Date:

December 31, 2024

Justification Of Any Waivers From Permit Application Requirements

None

Prepared By:

Sean Spencer – Wastewater Specialist

Date: January 25, 2022

cc: Caitlin O'Connell